



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,305	12/28/2001	Marcia Reid Martin	2001-054-SFT	8942

7590 05/20/2004

STORAGE TECHNOLOGY CORPORATION  
One Storage Tek Drive  
Louisville, CO 80028-4309

EXAMINER
----------

THAI, TUAN V

ART UNIT	PAPER NUMBER
----------	--------------

2186

8

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/034,305

Applicant(s)

MARTIN, MARCIA REID

Examiner

Tuan V. Thai

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24, 26-28 and 30 is/are rejected.
- 7) ☒ Claim(s) 25 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

Art Unit: 2186

**Part III DETAILED ACTION**

***Response to Amendment***

1. This office action is in response to Applicant's communication filed March 29, 2004. This amendment has been entered and carefully considered. Claims 1-30 remain pending in the application. Claims 23-30 are newly added.

2. Applicant's arguments with respect to claims 1-30 have been fully considered but they are not deemed to be persuasive.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-24, 26-28 and 30 are rejected under 35 U.S.C. § 102(b) as being anticipated by Squibb (USPN: 6,158,019);

As per claim 1; Squibb discloses the invention as claimed

Art Unit: 2186

including a data management appliance comprising a random-access-memory (e.g. see column 3, lines 44 et seq.); control circuit for receiving commands from a host is taught to the extent that it is being claimed since both read and write are received and controlled from host computer 3 (e.g. see figure 1A); in response to the control circuit receiving a write command from the computer, the control circuit updates the random-access storage unit to include information associated with the write command (e.g. see column 2, lines 10 et seq.); and in response to a read command including a logical address and a time value, the control circuit retrieves data representing contents of the logical address at a time represented by time value (e.g. see figure 4A; column 10, line 65 bridging column 11, line 1);

As per claim 2, the further limitation of the write commands are replicated from write commands issued to a primary storage device is embedded in the system of Squibb and taught to the extent that it is being claimed, for example, the current invention does contemplate operating in the absence of the primary storage device for the file to be restored (e.g. see column 4, lines 14 et seq.);

As per claim 3, the further limitation of the write commands are received from the computer system through a replicating controller is taught by Squibb since his system is operated in network or client/server environment where replicated controller

Art Unit: 2186

being utilized (e.g. see column 4, lines 56-57);

As per claim 4, Squibb discloses the write command replicated by the computer system (e.g. see figure 1, column 2, lines 10 et seq.);

As per claim 5, Squibb discloses the random-access storage unit stores a forward journal (e.g. see column 2, lines 28 et seq.);

As per claim 6, wherein the random-access storage unit stores a mirror-in-the-middle containing a copy of contents of a primary storage device at a fixed point in time (e.g. see column 2, lines 48 et seq.);

As per claim 7, the further limitation of wherein the random-access storage unit stores at least one snapshot containing changes that when made to contents of the mirror-in-the middle would result in a previous version of the contents of the primary storage device as being equivalent to the utilization of event journals to chronologically re-enact the storage file given an original file (e.g. see column 2, lines 28 et seq.);

As per claim 8, the concept of a mapping object stored in the control circuit for mapping logical addresses into physical addresses on the mirror-in-the-middle and contained in the at least one snapshot is equivalently taught as the creation and utilization of an event map (e.g. see column 5, lines 24 et seq.; column 7, lines 43 et seq., also see figure 2A);

Art Unit: 2186

As per claim 9, the further limitation of the control circuit receives commands from the computer system through a storage network is taught by Squibb since his data processing system is operating thru a client/server environment (e.g. see column 3, lines 30 et seq.; column 4, lines 55-57);

As per claims 10 and 11, Squibb discloses the random-access storage unit include a disk memory (e.g. see column 2, lines 4-9);

As per claims 12-22, they encompass the same scope of invention as to that of claims 1-11, the claims are therefore rejected for the same reasons as being set forth above. In addition, it should be noted that the mount command including a time value, the control circuit configures to perform future read operations with respect to a fixed time represented by the time value is being equivalent to the fulfilling a read request for an updated storage from the combination of fig. 4A having an original storage 6, an event journal 21 and an event map 29 (e.g. see figure 4B, column 11, lines 1 et seq.).

As per claims 23 and 27, the further limitation of commands stored in the forward journal are combined to obtain a net change is taught by Squibb since Squibb clearly teaches that *the event map permits efficient **combination** of the contents of the write event journal and the original storage* (e.g. see abstract), wherein by creating the event map, the net result of the changes

Art Unit: 2186

in the event journal are combined with the original file (e.g. see column 10, lines 11 et seq.);

As per claims 24 and 28, Squibb discloses the starting address and lengths associated with the net change are used to derive an inverse of the net change as being equivalent to the "inverse delta" detailed on column 12, lines 22 et seq.;

As per claims 26 and 30; the further limitation of a mirror-in-the-middle is updated to reflect the net change is taught by Squibb since Squibb clearly discloses that mirror systems duplicate changes (update) every time they occurs, for example, when change occurs, a write event is packaged and transmitted to a remote mirror system (e.g. see column 2, lines 49 et seq.);

#### **Allowable subject matter**

5. Claims 25 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and intervening claims.

6. As per remark, Applicant's counsel asserts that a) "Squibb does not teach in response to a read command including a logical address and a time value, the control circuit retrieves, from the random-access storage unit, data representing contents of the

Art Unit: 2186

logical address at a time represented by time value, as recited in claim 1 (page 7, line 12 bridging page 8, line 28); and b) Squibb does not teach where the write commands are received from the computer system through a replicating controller (page 8, line 29 bridging page 9, line 15).

With respect to (a); Examiner would like to emphasize that the logical and time value which are included with the read command are taught and embedded in Squibb's invention as claimed; for example, as previously detailed above and in the office action mailed 01/02/04 (column 10, line 65 bridging column 11, line 1), in fulfilling of read request for an updated storage, an original volume, an event journal and an event map; the process identifies *from the read request* and via event map, portions of the read request to be provided by the event journal and portions of the read request to be provided by the original storage, these sequence of events must including the logical address and time in order to carry out such tasks (e.g. see column 15, lines 33-37).

With respect to (b); as indicated previously and detailed above, Squibb, starting on column 4, lines 56 et seq.; discloses his system is operated in network or client/server environment where replicated controller are known to be utilized, and commands (including read/write commands) must be received from the computer system through one of the replicating controller in said client/server environment.

Art Unit: 2186

7. Applicant's arguments filed March 29, 2004 have been fully considered but they are not deemed to be persuasive.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan V. Thai whose telephone number is (703) 305-3842. The examiner can normally be reached on from 6:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew M. Kim can be reached on (703)-305-3821. The fax phone number for the

Application/Control Number: 10/034,305

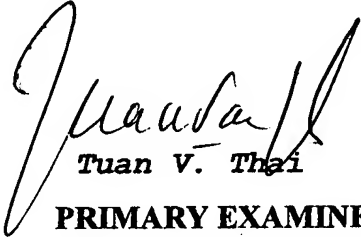
-9-

Art Unit: 2186

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVT/May 14, 2004

  
**Tuan V. Thai**  
**PRIMARY EXAMINER**  
**Group 2100**